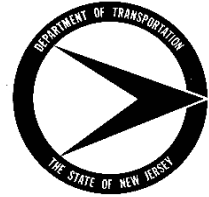


New Jersey Department of Transportation

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Baseline Document Change Announcement

NJDOT Bridges and Structures Design Manual

BDC02MB-02

December 12, 2002

SUBJECT: Release of the NJDOT Bridges and Structures Design Manual, Fourth Edition in U.S. Customary English Units

The Department has released the NJDOT Bridges and Structures Design Manual, Fourth Edition, 2002. This Manual establishes the policy for the design of bridge structures in New Jersey. Primarily, it establishes that bridge structures are to be designed to the criteria of the AASHTO LRFD Bridge Design Specifications. Use of the AASHTO Standard Specifications for Highway Bridges is permitted for certain applications.

BDC00MB-1, dated May 15, 2000, which introduced the use of the AASHTO LRFD Bridge Design Specifications, is superseded by this BDC announcement. BDC98MB-001 dated July 1, 1998, which introduced the 1998 3rd Edition of the Bridges and Structures Design Manual, is still in effect to facilitate the use of Metric Unit properties only. See below for Instruction to Designers.

To familiarize Designers with significant changes or additions, following is a narrative description of such occurrences:

Division 1 – Policies

Section 3

1. This Section contains the prime guidance on the use of the AASHTO LRFD Bridge Specifications. Stipulations on additions to or changes to the LRFD Specifications, in designing bridge structures in New Jersey, are addressed.
2. A definition to establish what constitutes a mass concrete member is provided.
3. Guidance on designing deep foundations elements is provided.

Section 3A

This Section provides the criteria for designing qualifying bridge structures to the criteria of the AASHTO Standard Specifications for Highway Bridges.

Section 7

General Notes, consistent with the LRFD Specifications, is provided.

Section 9A

Guidance on the use of the LRFD Specifications for superstructure replacement or bridge widening projects is provided.

Section 16

1. Guidance on designing foundations with the use of the LRFD Specifications is provided.
2. Guidance on selecting High Performance Concrete material for prestressed/precast concrete piles is provided.
3. Guidance on designing and constructing drilled shaft foundations is provided.

Section 17

1. Guidance on designing abutments and walls with the use of the LRFD Specifications is provided.
2. Guidance on designing alternate retaining walls; such as, MSE walls and modular bin walls is provided.
3. Guidance on designing alternate or proprietary type abutments is provided.

Section 19

1. Guidance on designing piers with the use of the LRFD Specifications is provided.
2. Guidance on the use of High Performance Concrete for pier protection in a waterway is provided.
3. Guidance on designing piers for a vessel collision is provided.

Section 20

1. Use of High Performance Concrete as the primary deck slab type is established in this Section.
2. High Performance Concrete is defined and its application to deck slab construction is clarified.
3. Typical reinforcement steel distribution tables for deck slabs is provided. These Tables are based on the LRFD Specifications' criteria.

Section 23

Criteria for the use of crash tested bridge/parapet railing systems is provided.

Section 24

1. Guidance on the design of structural steel with the use of the LRFD Specifications is provided.
2. Grades of steel that may be used, including High Performance Steel, is established.
3. Redundant type bridge structure configuration is defined.
4. Criteria on the use of Weathering Steel is provided.
5. Criteria on the use of bearing systems is provided.

Section 25

1. Guidance is provided on the allowance of various precast/prestressed concrete sections; such as I-Girders, Voided Slab and Box Beams, Bulb Tee Shapes, Spliced I-Girders and Precast Segmental Concrete.

2. Criteria for the use of High Performance Concrete for prestressed/precast concrete applications is provided.
3. Criteria for the use of Spread Box Beam designs is provided.

Section 26

Guidance as to the continued use of metric units for detailing reinforcement steel is provided.

Section 30

Guidance is provided for the presentation of precast concrete arch structures and three-sided precast concrete structures.

Section 44

Criteria on the permitted use of the AASHTO Standard Specifications for the design of Non-State owned, Non-NHS highway bridges is provided.

Section 45

1. Criteria on the use of the LRFD Specifications for seismic designs is provided.
2. All bridge structures shall be classified as “Essential” for seismic design purposes.

Section 46

1. Designing for scour criteria has been expanded to provide more explicit criteria.
2. Permitted backwater elevation rise criteria is provided.

Section 48

This Section has been written to provide direction on performing Security assessments for bridge designs.

Standard Drawings

Standard Drawings for Sign Support Structures have been removed from the Design Manual and set up as an independent Baseline Document (Reference: BDC02MB-01, dated July 22, 2002). As such numbering of remaining Standard Drawings have been revised.

Guide Plates

Plates 3.9-1 through 3.9-26, for structural steel fabrication presentations are new. These Plates replace those in the Third Edition of the Manual. The Plates are a duplication of conceptual detailing that was developed by the National Steel Bridge Alliance.

Instructions to Designers

The use of this Fourth Edition of the Bridge and Structures Design Manual is effective immediately. This Edition has been prepared in U.S. Customary English Units.

If there is a need to design in Metric Units, the conversion properties contained in the Third Edition of the Manual (BDC98MB-001, dated July 1, 1998) may be referenced. However, the design procedure shall be in accordance with this release.

Designers may access this NJDOT Bridges and Structures Design Manual, Fourth Edition in U.S. Customary Units from the following New Jersey Department of Transportation Web Page:

<http://www.state.nj.us/transportation/cpm/bridgedesignmanual4thedition.htm>

Distribution and Announcement Access Information

This announcement is being distributed electronically to our in-house staff and various public agencies based on a distribution list maintained by the Engineering Documents Unit.

Internet access to this BDC Announcement can be downloaded and viewed from the following New Jersey Department of Transportation Web Page:

<http://www.state.nj.us/transportation/cpm/BaselineDocuments/index1.html>T.

Electronic copies of this document in Adobe Acrobat Reader format (PDF) on CD, in addition to hard copies of this document, can be acquired on a limited basis by contacting:

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Attachment: NJDOT Bridges and Structures Design Manual, Fourth Edition